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logical categories. He believes that there are "three stereotyped, fixed categories of organs, viz., shoot, leaf, and root," and that there can be no others. "There can be no room in that region of the vegetable kingdom above the level of the homogeneous thalloid types for any organ which is neutral, intermediate, or undifferentiated in character." Incidentally the author furnishes proof, which he says is unequivocal, "that the normal rhizophore has the morphological value of a shoot." This conclusion we are ready to accept, in the absence of any better one, but it is late in the day to defend rigid categories, and to decide what can and what cannot be.—J. M. C.

New genus of flagellates.—GARDNER¹⁸ has described a new genus of flagellates (*Leuvenia*) whose unusual combination of morphological features prevents "any attempt at present to classify it, even to naming the family to which it belongs or in which it has its nearest affinities." The motile, growth, and palmella stages are known. In the growth and mature stages the nuclei and chromatophores are inconstant in number, and in the motile stages contractile vacuoles occur in both anterior and posterior ends, and "pyrenoids, gullet, and stigma are absent." The chromatophores divide by constriction, remain attached for some time by delicate cytoplasmic strands, and are irregular in shape and size.—J. M. C.

Diurnal periodicity in the nitrogen content of leaves.—Investigations hitherto have tended to establish a diurnal periodicity in the nitrogen content of leaves, the fluctuation showing a greater content in the morning than in the evening. CZAPEK, however, in his *Biochemie* states that such investigations should be more comprehensive. With a view to supplying this need, OTTO and KOOPER¹⁹ have made a comprehensive series of analyses which show that even in different stages of development leaves of several different species have a greater nitrogen content in the morning than in the evening. They also found a gradual decrease in the nitrogen content from spring to autumn.—RAYMOND H. POND.

New genera of Chlorophyceae.—GARDNER²⁰ has described two new genera of green algae growing in association with other marine algae of California. *Endophyton* (*E. ramosum*) is endophytic within the fronds of various species of red algae, and is referred to the Chroolepidae on account of the absence of hair cells, but it has close resemblances to the Chaetophoreae. *Pseudodictyon*

¹⁸ GARDNER, N. L., *Leuvenia*, a new genus of flagellates. Univ. Calif. Publ. Bot. 4:97-106. pl. 14. 1910.

¹⁹ OTTO, DR. R., and KOOPER, W. D., Beiträge zur Abnahme bezw. Rückwanderung der Stickstoffverbindungen aus den Blättern während der Nacht, sowie zur herbstlichen Rückwanderung von Stickstoffverbindungen aus den Blättern. Landwirtsch. Jahrb. 39:167-172. 1910.

²⁰ GARDNER, N. L., New Chlorophyceae from California. Univ. Calif. Publ. Bot. 3:371-375. pl. 14. 1909.

(*P. geniculatum*) occurs among the cells of the cortical layer of species of *Laminaria*, and is also referred to the Chroolepidae. In the same paper a new *Ulvella* (*U. prostrata*) is described, which is epiphytic on *Iridaea laminarioides*.—J. M. C.

Insect galls of Michigan.—COOK²¹ has published a list of 59 species of insect galls from Michigan, 31 of them being new to the state. It includes representatives from all the orders of insects that contain gall-makers except the Coleoptera. As there are about 1200 known insect galls in North America, this list of 59 is only a beginning for the state of Michigan.—J. M. C.

Suspensor in Helminthostachys.—LANG²² has discovered that *Helminthostachys* possesses a massive suspensor closely resembling that of *Botrychium obliquum* described by LYON. Since CAMPBELL has recorded the same structure in *Danaea*, it is becoming evident that a suspensor among pteridophytes is not a peculiarity of the Lycopodiales.—J. M. C.

Two embryo sacs in Fritillaria.—Lechmere²³ has added *Fritillaria* to the short list of monocotyledons that occasionally develop two megaspore mother cells in an ovule. In this case (*F. messanensis*) the two enlarged mother cells are figured as lying side by side, in immediate contact, both nuclei being in the synopsis stage.—J. M. C.

²¹ COOK, MEL T., The insect galls of Michigan. Mich. Geol. and Biol. Survey, Publ. 1, Biol. Ser. 1. pp. 23-33. 1910.

²² LANG, WILLIAM H., On a suspensor in *Helminthostachya zeylanica*. Annals of Botany 24:611. 1910.

²³ LECHMERE, A. ECKLEY, Two embryo sac mother cells in the ovule of *Fritillaria*. New Phytol. 9:257-259. fig. 1. 1910.